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STITES & HARBISON PLLC 1199 NORTH FAIRFAX STREET SUITE 900 ALEXANDRIA, VA 22314			BODDIE, WILLIAM	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/611,814	Applicant(s) PRYOR, TIMOTHY R.	
	Examiner William Boddie	Art Unit 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Applicant's claim for the benefit of prior applications is noted. Priority is acknowledged to provisional applications, 60/393,130 and 60/458,434. Also application 09/789,538 also appears to be a valid continuation-in-part. Continuation-in-part application 09/435,854, however, does not disclose the limitation of physical control details mounted to a display screen. As this limitation appears in all independent claims of the current application, priority is not acknowledged for the copending application 09/435,854.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Objections

3. Claims 54 and 55 are objected to because of the following informalities: the phrase "electrooptical sensing means" should read "electro-optical sensing means". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The metes and bounds of the wording "irregular" is unclear.

Claim 45 recites the limitation "the vehicle" in line 2. There is insufficient antecedent basis for this limitation in the claim. It appears that applicant might have intended to for claim 45 to be dependent upon claim 25 instead of claim 1.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 25, 34, 40, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Jaeger (US 6,326,956).

With respect to claim 25, Jaeger discloses, a reconfigurable instrument panel for a vehicle comprising: a display having a screen (22 in fig. 7); at least one physical control detail mounted to said screen (78 and 68 in fig. 7); a touch sensing means for sensing xy touch position on at least a portion of said display (76 in fig. 7 and col. 8, lines 66-67 and col. 9, lines 1-4); and a computer to control said display (53 in fig. 24, a microprocessor is synonymous with 'computer'), and to determine said at least one physical control detail position (figs. 23/24 disclose the sensing of the position of the slider) and said touch position (note character recognition means in cols. 8 and 9).

With respect to claim 34, Jaeger discloses, an apparatus according to claim 25 (see above) wherein at least one of said control details or said touch position is sensed electro-optically (col. 5, lines 13-15).

With respect to claim 40, Jaeger discloses, an apparatus according to claim 25 (see above) wherein displayed data is comprised of labels and other data relating to the function of one or more of said physical control details (note fig. 7 and its labels and calibration marks).

With respect to claim 42, Jaeger discloses, an apparatus according to claim 25 (see above) wherein said touch sensing is responsive to a gesture of a person using one or two fingers (col. 8, lines 66-67 and col. 9, lines 1-4). While Jaeger describes using a stylus to input "gestures" it is well known in the art that one's finger can also be used as a 'stylus.' Therefore it would have been obvious to one of ordinary skill in the art to develop touch sensing that is responsive to finger gestures. The motivation being the user is not required a specialized input device.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-11, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613).

With respect to claim 1, Fujimoto discloses, a reconfigurable control system, comprising: a rear projection display including a projector (17 in fig. 2) and a display screen (1 in fig. 2) and an electro-optical sensing system (9 and 11 in fig. 2); and a computer to control said projector (14 in fig. 5).

Fujimoto does not expressly disclose, a plurality of physical details mounted to said screen, the sensing system sensing the position of the physical details and determining the desired inputs from the sensed control positions.

Jaeger discloses, a plurality of physical details (note the two knobs in figs. 44 and 45) mounted to said screen (316 in fig. 44), the sensing system sensing the position of the physical details (col. 32 lines 32-49) and determining the desired inputs from the sensed control positions (col. 32 lines 12-16 for example).

Fujimoto and Jaeger are analogous art because they are from the same field of endeavor namely, display peripheral input devices.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the physical details and position determining means of Jaeger on the electro-optical system and projector of Fujimoto.

The motivation for doing so would have been to allow the user to determine the most convenient positions for the physical details and allow the user another means of input.

Therefore it would have been obvious to combine Fujimoto with Jaeger for the benefit of user personalization to obtain the invention as specified in claim 1.

With respect to claim 2, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto does not expressly disclose, wherein said computer controls said display as a result of said sensed position, stored data, or an external source.

Jaeger further discloses, wherein said computer controls said display as a result of said sensed position (col. 32, lines 62-65), stored data, or an external source.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the control of the display as a result of the sensed position, disclosed by Jaeger, with the projection setup of Fujimoto.

The motivation for doing so would have been to allow the user to place the knob anywhere on the screen without worrying about covering a certain graphic of the display.

Therefore it would have been obvious to combine Fujimoto with Jaeger for the benefit of more flexibility for the user to obtain the invention as specified in claim 2.

With respect to claim 3, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above), wherein said computer controls said display as a result of data inputted to said computer (see above).

Jaeger does not expressly disclose, wherein said computer controls said display as a result of data inputted to said computer from an external source.

Fujimoto further discloses, wherein said computer controls said display as a result of data inputted to said computer from an external source (col. 4, lines 5-9, Fujimoto discloses the user interacting with the computer. In this case the user is the external source inputting data by touching the screen).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the external control feature, disclosed by Fujimoto, with the projection and electro-optically sensing setup of Fujimoto and Jaeger.

The motivation for doing so would have been to allow user to be the input means into the computer without need for special control details.

Therefore it would have been obvious to combine Fujimoto with Jaeger for the benefit of a simplified input means to obtain the invention as specified in claim 3.

With respect to claim 4, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto further discloses, wherein said electro-optical sensing system is comprised by a TV camera (11 in fig. 2 and col. 9, lines 40-59, while Fujimoto does not call these video cameras "tv cameras", however Fujimoto's cameras are within the scope of tv cameras).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the video cameras of Fujimoto as the sensing system of the combination of Fujimoto and Jaeger.

The motivation for doing so would have been for the ease of use and scalability associated with video cameras.

Therefore it would have been obvious to combine Fujimoto with Jaeger for the benefit of scalability to obtain the invention as specified in claim 4.

With respect to claim 5, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto further discloses, wherein said electro-optical sensing system is comprised by an optical sensor (11 in fig. 5) incorporated into the projector (17 in fig. 5). (In the embodiment shown in fig. 5, the camera and projector are arranged to be more compact. It is clear that the camera could be incorporated into the projector in this embodiment. Note col. 9, lines 56-59.)

At the time of the invention it would have been obvious to a person of ordinary skill in the art to comprise the electro-optical system, of Fujimoto and Jaeger, of an optical sensor and a projector incorporated together.

The motivation for doing so would have been to make the apparatus as compact and small as possible (Fujimoto, col. 9, lines 28-30).

Therefore it would have been obvious to combine Jaeger and Fujimoto for the benefit of compactness to obtain the invention as specified in claim 5.

With respect to claim 6, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Jaeger further discloses wherein said computer additionally controls a desired function (col. 2, lines 4-12, microprocessor is understood to be a computer. Jaeger discloses that a microprocessor controls the language format function).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to control functions with the same computer that controls the sensing and projection devices.

The motivation for doing so would have been to simplify the circuitry and wiring. Had multiple computers been used communication between those different devices

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would be both more expensive and more complicated than simply utilizing a single computer.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of simplified wiring to obtain the invention as specified in claim 6.

With respect to claim 7, Fujimoto and Jaeger disclose, an apparatus according to claim 1(see above).

Jaeger further discloses wherein at least one of said control details is a knob (12 in fig. 1).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a knob as a physical control detail, as taught by Jaeger, in the sensing and projecting system of Fujimoto and Jaeger.

The motivation for doing so would have been the familiar manipulation of knobs by users.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of familiarity to obtain the invention as specified in claim 7.

With respect to claim 8, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Jaeger further discloses, wherein absolute position of said control detail is determined (col. 32, lines 31-35)

At the time of the invention it would have been obvious to a person of ordinary skill in the art to determine the absolute position of the control detail as taught by Jaeger on the sensing and projection device of Fujimoto and Jaeger.

The motivation for doing so would have been to accurately update the display so that the location of the control detail was not obscuring the displayed image.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of effectively updating the display to obtain the invention as specified in claim 8.

With respect to claim 9, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above)

Fujimoto further discloses, including sensing of touch position on said screen (fig. 3 also col. 1, lines 7-16 for example).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the control details of Jaeger with the touch sensing means of Fujimoto.

The motivation for doing so would have been to allow the user another means of input into the device.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of addition input means to obtain the invention as specified in claim 9.

With respect to claim 10, Fujimoto and Jaeger disclose, an apparatus according to claim 9 (see above)

Fujimoto further discloses, wherein said touch sensing is also achieved electro-optically (note fig. 2, col. 5, lines 4-28 details the operation of the electro-optical means).

At the time of the invention it would have been obvious to achieve the touch sensing electro-optically.

The motivation for doing so would have been the adaptability of screen size (Fujimoto, col. 6, lines 22-24)

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of screen size flexibility to obtain the invention as specified in claim 10.

With respect to claim 11, Fujimoto and Jaeger disclose, an apparatus according to claim 9 (see above).

Fujimoto further discloses, wherein said computer controls said display as a result of said sensed touch position (col. 4, lines 5-9 discusses the user interacting with the computer by touch, thus the display must be updating. Fujimoto also discloses the use of the system for word processing and spreadsheets, col. 1, lines 33-36)

At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the configurable knobs of Jaeger on the sensing and projecting means of Fujimoto.

The motivation for doing so would have been to allow the user to interact with the display screen by touch and see the result of the actions on the same screen.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of interacting with the screen as specified in claim 11.

With respect to claim 22, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto further discloses, projection means (17 in fig. 2) that are an image modulating type, specifically DLP (col. 6, lines 60-62)

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a projection means that is an image modulating type, disclosed by Fujimoto.

The motivation for doing so would have been a smaller, lighter, and crisper display projection means.

Therefore it would have been obvious to combine Jaeger and Fujimoto for the benefit of smaller lighter projection means to obtain the invention as specified in claim 22.

With respect to claim 23, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Jaeger further discloses wherein said screen incorporates two knobs spaced horizontally (fig. 44).

At the time of the invention it would have been obvious to include a pair of knobs spaced horizontally on the projection and sensing means of Fujimoto.

The motivation for doing so would have been to have different functions for each knob, radio tuning and volume control for example (note Jaeger's radio display on fig. 2a and 2b)

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of different knob control functions to obtain the invention as specified in claim 23.

With respect to claim 24, Fujimoto and Jaeger disclose, an apparatus according to claim 23 (see above).

Jaeger further discloses, wherein displayed image on said screen corresponds to a radio configured around said two knobs, and said radio image is later reconfigured to another function (figs. 2a/2b and col. 8, lines 32-39, Jaeger states that a diverse group of circuits could also be controlled in addition to the radio).

At the time of the invention it would have been obvious to one of ordinary skill in the art to control another function in addition to the radio with the projector and sensing means of claim 23 as disclosed by Fujimoto and Jaeger.

The motivation for doing so would have been to control the radio and, for example, the windshield wiper speed all at the same location within a vehicle.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of consolidating the controls of a device in one area to obtain the invention as specified in claim 24.

9. Claims 12, 13, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613) and further in view of Jaeger et al. (US 6,326,956).

With respect to claim 12, Fujimoto and Jaeger (US 5,936,613 [US 5]) disclose, an apparatus according to claim 1 (see above).

Fujimoto and Jaeger (US 5) do not expressly disclose, wherein a datum on said physical control detail located on the users side of said screen is sensed.

Jaeger (US 6,326,956 [US 6]) discloses, wherein a datum (140 in fig. 19) on said physical control detail located on the users side of said screen is sensed (fig. 21 and col. 11, lines 35-55 discusses the operation of sensing the datum).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the datum sensing functionality, disclosed by Jaeger (US 6) on the invention of claim 1 disclosed by Jaeger (US 5) and Fujimoto.

The motivation for doing so would have been to determine the angular rotation of the physical control detail.

Therefore it would have been obvious to combine Jaeger (US 6) with Fujimoto and Jaeger (US 5) for the benefit of determining the angular rotation to obtain the invention as specified in claim 12.

With respect to claim 13, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Jaeger additionally discloses, wherein a datum (544 of fig. 73) is sensed on a member (547 of fig. 73) related to said physical control detail position is located on the projector side of said screen (523 in fig. 73 and col. 30, lines 27-42 discusses the operation of these elements).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the datum on the projector side of the screen as shown by Jaeger in the invention of claim 1, disclosed by Fujimoto and Jaeger.

The motivation for doing so would have been to also locate the sensing means under the screen so as to protect them from outside elements.

Therefore it would have been obvious to combine Jaeger and Fujimoto for the benefit of locating the sensing means under the screen to obtain the invention as specified in claim 13.

With respect to claim 20, Fujimoto and Jaeger (US 5) disclose, an apparatus according to claim 1.

Fujimoto and Jaeger (US 5) do not expressly disclose, wherein at least one of said physical control details is a slider, switch or dial.

Jaeger (US 6) discloses, wherein at least one of said physical control details is a slider (78 in fig. 7), switch or dial.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a slider on the projection and sensing system of claim 1, disclosed by Fujimoto and Jaeger (US 5).

The motivation for doing so would have been to allow for more intuitive means of input for the user, for example audio balance is more intuitive with a slider input means.

Therefore it would have been obvious to combine Fujimoto, Jaeger (US 5), and Jaeger (US 6) for the benefit of a more intuitive interface to obtain the invention as specified in claim 20.

10. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613) and further in view of Levin et al. (US 6,154,201).

With respect to claim 14, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto and Jaeger do not expressly disclose, wherein force feedback is provided to the user as a result of said sensed control detail or touch position.

Levin discloses, wherein force feedback (col. 2 lines 1-3) is provided to the user as a result of said sensed control detail (col. 2 lines 66-67 and col. 3 lines 1) or touch position.

Fujimoto, Jaeger, and Levin are analogous art because they are from the same field of endeavor, namely novel input methods. It should also be noted that applicant cited Levin (US 6,154,201) in the specification.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include force feedback functionality in the physical control features of the claim 1 invention disclosed by Fujimoto and Jaeger.

The motivation for doing so would have been to provide physical sensations to the user manipulating the knob (Levin, col. 1, lines 35-36).

Therefore it would have been obvious to combine Fujimoto, Jaeger, and Levin for the benefit of providing physical sensations to obtain the invention as specified in claim 14.

With respect to claim 15, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto and Jaeger do not expressly disclose, wherein force feedback is provided to the user as a result of data stored in computer memory or inputted from external sources.

Levin discloses a microprocessor controlling the type and amount of force feedback that is applied to a knob (col. 1, lines 37-44). He also discloses a local memory that stores "force processes" (206 in fig. 8 and col. 23, line 16-22).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include memory controlled force feedback in the physical control features of the claim 1 invention disclosed by Fujimoto and Jaeger.

The motivation for doing so would have been to offer different types of force feedback to the user.

Therefore it would have been obvious to combine Fujimoto, Jaeger, and Levin for the benefit of different forces fed back to the user to obtain the invention as specified in claim 15.

11. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613) and further in view of Cragun et al. (US 5,412,189).

With respect to claim 16, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto and Jaeger do not expressly disclose, wherein said screen incorporates at least one relief feature.

Cragun discloses, relief features (i.e. tactile information) on a touch screen (col. 1, lines 54-57).

Fujimoto, Jaeger, and Cragun are all analogous art because they are from the same field of endeavor, namely touch screen technology.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include relief features on the projection and sensing system disclosed by Fujimoto and Jaeger.

The motivation for doing so would have been to allow visually impaired users to also use the device (Cragun, col. 1, lines 43-45).

Therefore it would have been obvious to combine, Fujimoto, Jaeger, and Cragun for the benefit of the visually impaired to obtain the invention as specified in claim 16.

With respect to claim 17, Fujimoto, Jaeger, and Cragun disclose, an apparatus according to claim 16 (see above).

Cragun further discloses, wherein said relief feature does not unduly disrupt images projected on said screen (col. 3, lines 23-28).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to construct the relief features as transparent as possible.

The motivation for doing so would have been decrease, both, lens effects and interference with visual information (col. 3, lines 25-28).

Therefore it would have been obvious to combine Fujimoto, Jaeger, and Cragun for the benefit of decreasing lens effects to obtain the invention as specified in claim 17.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613) and further in view of Villalobos et al. (US 4,644,326).

With respect to claim 18, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above)

Fujimoto and Jaeger do not expressly disclose wherein said physical control detail is transparent.

Villalobos discloses, wherein said physical control detail is transparent (36 in fig. 1 and col. 8, lines 66-68 and col. 9, lines 1-2).

Villalobos, Fujimoto, and Jaeger are all analogous art because they are from the same field of endeavor namely input panels.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to make the control features of Fujimoto and Jaeger transparent as disclosed by Villalobos.

The motivation for doing so would have been to allow images to be displayed on/through the control details.

Therefore it would have been obvious to combine Fujimoto, Jaeger, and Villalobos for the benefit of displaying images on/through the controls to obtain the invention as specified in claim 18.

13. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613) and further in view of Serras-Paulet et al. (US 4,303,856).

With respect to claim 19, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto and Jaeger do not expressly disclose, wherein said physical control detail has an opening through which said screen may be viewed.

Serras-Paulet discloses, wherein said physical control detail (4-6,9 in fig. 1) has an opening (20 in fig. 1) through which said screen (12 in fig. 1) may be viewed.

Serras-Paulet, Fujimoto, and Jaeger are all analogous art because they are from the same field of endeavor illuminated input devices.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include an opening, taught by Serras-Paulet, in the control detail, of Fujimoto and Jaeger.

The motivation for doing so would have been to illuminate the control detail (Serras-Paulet, col. 4, lines 47-50)

Therefore it would have been obvious to combine Fujimoto, Jaeger, and Serras-Paulet for the benefit of illuminated the controls to obtain the invention as specified in claim 19.

14. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613) and further in view of Wellner (US 5,511,148).

With respect to claim 21, Fujimoto and Jaeger disclose, an apparatus according to claim 1 (see above).

Fujimoto and Jaeger do not expressly disclose wherein said projection means is a flying spot scanning type.

Wellner discloses flying spot scanning type projection means (col. 1, lines 50-54).

Wellner, Fujimoto, and Jaeger are all analogous art because they are from the same field of endeavor, namely display peripheral interface input devices.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to develop the projection means, of Fujimoto and Jaeger, as a flying spot scanning type, disclosed by Wellner.

The motivation for doing so would have been to allow projection of a document-sized image onto a work surface (Wellner, col. 1, lines 54-56) and to allow the user to interact with it.

Therefore it would have been obvious to combine Wellner, Fujimoto, and Jaeger, for the benefit of user-interaction with a projected image to obtain the invention as specified in claim 21.

15. Claims 28, 30, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956).

With respect to claim 28, Jaeger discloses, an apparatus according to claim 25 (see above).

The further limitation of claim 28 stating, wherein said screen is curvilinear, is merely a design choice. Therefore it would have been obvious to make the screen curvilinear for the benefit of aesthetics to obtain the invention as specified in claim 28.

With respect to claim 30, Jaeger discloses, an apparatus according to claim 25 (see above).

The further limitation of claim 30 stating, where said display at least 10 x 9 inches in extent or area, is merely a design choice. Therefore it would have been obvious to make the screen 10"x9" for the benefit certain size requirements to obtain the invention as specified in claim 30.

With respect to claim 33, Jaeger discloses, an apparatus according to claim 25 (see above).

While Jaeger does not expressly disclose wherein video images are displayed on an upper portion of said display, it is well known in the art that liquid crystal displays can display video images. Therefore it would have been obvious to play video images on the upper portion of the LCD display. The motivation for doing so would have been to allow for a variety of user configurations.

16. Claims 26, 41, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956) in view of Fujimoto (US 6,061,177).

With respect to claim 26, Jaeger discloses, an apparatus according to claim 25 (see above).

Jaeger does not expressly disclose, wherein said display is rear projection display further included a projector.

Fujimoto discloses, a projection system (fig. 17), that operates in a rear projection manner (note fig. 2 or fig. 5).

Fujimoto and Jaeger are analogous art because they are from the same field of endeavor, namely display peripheral input devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to use a rear projector as a means for display on the system of Jaeger.

The motivation for doing so would have been that projection systems allow the display screen size to be modified more easily than the LCD panel of Jaeger (Fujimoto, col. 1, lines 41-43).

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of altering the display screen size to obtain the invention as specified in claim 26.

With respect to claim 41, Jaeger discloses, an apparatus according to claim 33 (see above).

Jaeger does not expressly disclose, wherein video image can be touched at a desired location to acknowledge or confirm data presented.

Fujimoto discloses, the user interacting with the computer. In communicating with a general-purpose computer, a user commonly acknowledges data presented.

Fujimoto discloses a general-purpose computer (col. 4, lines 6-9) for use with office applications for example (col. 1, lines 33-36).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to design the system so that displayed images can be acknowledged.

The motivation for doing so would have been to allow interaction between the displayed images and the user.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of interaction between the computer and user to obtain the invention as specified in claim 41.

With respect to claim 46, Jaeger discloses, an apparatus according to claim 25 (see above) wherein data to be acted on by touch on said screen is under control of said computer (52 and 53 in fig. 10).

Jaeger does not expressly disclose wherein the data is projected.

Fujimoto discloses a projection system that projects the data onto a touch screens (fig. 2 for example.)

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the projection system of Fujimoto in place of the LCD display of Jaeger.

The motivation for doing so would have been that projection allows for a much more flexible screen size than that of LCD panels.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of flexible screen size to obtain the invention as specified in claim 46.

17. Claims 27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956 [US 6]) in view of Ames et al. (US 4,787,040).

With respect to claim 27, Jaeger discloses, an apparatus according to claim 25 (see above).

Jaeger does not expressly disclose, wherein said display is located in the center stack of said vehicle.

Ames discloses installing a CRT touch screen in the center stack of a vehicle (36 in fig. 2)

Jaeger and Ames are analogous art because they are from the same field of endeavor, namely display peripheral interface input devices.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to locate the display, taught by Jaeger, in the center stack of a vehicle as disclosed by Ames.

The motivation for doing so would have been that this is the typical location for control over additional functions of a car, such as radio and climate control.

Therefore it would have been obvious to combine Jaeger and Ames for the benefit of familiarity with users to obtain the invention as specified in claim 27.

With respect to claim 31, Jaeger discloses, an apparatus according to claim 25 (see above).

Jaeger does not disclose expressly that the display is located in the center stack of said vehicle and extends toward the steering wheel of said vehicle.

Ames discloses, locating a CRT display in the center stack of said vehicle and extends toward the steering wheel of said vehicle (note the location of 36 in fig. 2).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to locate the display, taught by Jaeger, in the center stack of a vehicle extending towards the steering wheel as disclosed by Ames.

The motivation for doing so would have been that this is the typical location for control over additional functions of a car, such as radio and climate control.

Therefore it would have been obvious to combine Jaeger and Ames for the benefit of familiarity with users to obtain the invention as specified in claim 31.

18. Claims 29,32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956 [US 6]) in view of Jaeger et al. (US 5,936,613 [US 5]).

With respect to claim 29, Jaeger (US 6) discloses, an apparatus according to claim 25 (see above).

Jaeger (US 6) does not expressly disclose wherein said screen is irregular.

Jaeger (US 5) discloses wherein said screen is irregular (col. 25, lines 60-65).

The two references are analogous art because they are from the same field of endeavor namely, display peripheral input devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to construct the screen of Jaeger (US 6) in a flexible manner allowing irregular shapes, taught by Jaeger (US 5).

The motivation for doing so would have been to allow the inputs to be situated in a more ergonomic position for the user, such as a convex shape.

Therefore it would have been obvious to combine Jaeger (US 5) and Jaeger (US 6) for the benefit of ergonomics to obtain the invention as specified in claim 29.

With respect to claim 32, Jaeger (US 6) discloses, an apparatus according to claim 25 (see above)

Jaeger (US 6) does not expressly disclose, wherein said display screen is made of plastic.

Jaeger (US 5) discloses wherein said display screen is made of plastic (col. 8, lines 44-47).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to make the display screen out of plastic.

The motivation for doing so would have been due to the durability of plastic.

Therefore it would have been obvious to combine Jaeger (US 6) and Jaeger (US 5) for the benefit of durability to obtain the invention as specified in claim 32.

With respect to claim 35, Jaeger (US 6) discloses, an apparatus according to claim 25 (see above).

Jaeger (US 6) does not expressly disclose, wherein said computer further controls a function of the vehicle.

Jaeger (US 5) discloses, using the display input device to control a radio (see fig. 2a and 2b), a function of a vehicle.

At the time of the invention it would have been obvious to control a function of the vehicle with the computer of the apparatus.

The motivation for doing so would have been to make the device integral to the functioning of the vehicle.

Therefore it would have been obvious to combine Jaeger (US 5) and Jaeger (US 6) for the benefit of integrating the device into the functions of the vehicle to obtain the invention as specified in claim 35.

19. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956 [US 6]) in view of Yamaguchi (US 6,441,807).

With respect to claim 36, Jaeger discloses, an apparatus according to claim 25 (see above).

Jaeger does not expressly disclose, wherein said screen is easily interchanged.

Yamaguchi discloses an interchangeable screen (22 and 21 in fig. 2) for a touch screen unit (10 in fig. 2) with projector input means (106 in fig. 12).

Yamaguchi and Jaeger are analogous art because they are from the same field of endeavor, namely display peripheral interface input devices.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the interchangeable screens of Yamaguchi with the plurality of control features of Jaeger.

The motivation for doing so would have been to allow more flexibility of uses for the users (for example sheet 23 in fig. 3).

Therefore it would have been obvious to combine Jaeger and Yamaguchi for the benefit of greater flexibility and range of uses to obtain the invention as specified in claim 36.

20. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956) in view of Cragun et al. (US 5,412,189).

With respect to claim 37, Jaeger discloses, apparatus according to claim 25 (see above).

Jaeger does not expressly disclose, wherein said screen incorporates relief features to aid operation by feel.

Cragun discloses, relief features (i.e. tactile information) on a touch screen (col. 1, lines 54-57).

Jaeger and Cragun are analogous art because they are from the same field of endeavor, namely touch screen technology.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include relief features on the sensing system disclosed by Jaeger.

The motivation for doing so would have been to allow visually impaired passengers to also use the device (Cragun, col. 1, lines 43-45).

Therefore it would have been obvious to combine Jaeger and Cragun for the benefit of the visually impaired passengers to obtain the invention as specified in claim 37.

21. Claims 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956) in view of Levin et al. (US 6,154,201).

With respect to claim 38, Jaeger discloses, apparatus according to claim 25 (see above).

Jaeger does not expressly disclose, wherein said screen incorporates force feedback features controlled by said computer to aid operation of said physical control details by feel.

Levin discloses, wherein force feedback (col. 2 lines 1-3) is provided to the user as a result of said sensed control detail (col. 2 lines 66-67 and col. 3 lines 1) or touch position.

Jaeger and Levin are analogous art because they are from the same field of endeavor, namely novel input methods.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include force feedback functionality in the physical control features of the claim 25 invention disclosed by Jaeger.

The motivation for doing so would have been to provide physical sensations to the user manipulating the knob (Levin, col. 1, lines 35-36).

Therefore it would have been obvious to combine Jaeger and Levin for the benefit of providing physical sensations to obtain the invention as specified in claim 38.

22. Claims 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956) in view of Blouin (US 5,977,867).

With respect to claim 39, Jaeger discloses, an apparatus according to claim 25 (see above).

Jaeger does not disclose expressly, wherein said screen incorporates force feedback features controlled by said computer to aid operation of said touch position sensing by feel.

Blouin discloses a tactile feedback unit (16 in fig. 2) incorporated into the screen that aids operation of touch position sensing by feel (col. 2, lines 48-56) and is controlled by a computer (3 in fig. 1).

Blouin and Jaeger are analogous art because they are from the same field of endeavor namely, display peripheral interface input devices.

At the time of the invention it would have been obvious to include the tactile feedback of Blouin on the screen of Jaeger.

The motivation for doing so would have been to allow manipulation of the screen without having to look at the screen.

Therefore it would have been obvious to combine Jaeger and Blouin for the benefit of not having to watch the screen to manipulate it, to obtain the invention as specified in claim 39.

23. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 6,326,956) in view of Tran (US 6,054,990).

With respect to claim 43, Jaeger discloses, an apparatus according to claim 42 (see above). As shown above in claim 42 Jaeger provides for an OCR area.

Jaeger does not expressly disclose, wherein said gesture is a sliding gesture

A well-known system of OCR gestures is Graffiti. This system incorporates sliding gestures (carriage return and back space for instance). This system is disclosed in column 9 of Tran (US 6,054,990).

Tran and Jaeger are analogous art because they are from the same field of endeavor namely touch screen technology.

The motivation for combining the Graffiti gestures with the OCR area of Jaeger is that the Graffiti gestures are already well known to users.

Therefore it would have been obvious to combine Jaeger with Tran for the benefit of ease of use to obtain the invention as specified in claim 43.

With respect to claim 44, Jaeger discloses an apparatus according to claim 42 (see above).

Jaeger does not expressly disclose wherein said gesture is a turning gesture.

A well-known system of OCR gestures is Graffiti. This system incorporates turning gestures (note the number zero and the letter O). This system is disclosed in column 9 of Tran (US 6,054,990).

Tran and Jaeger are analogous art because they are from the same field of endeavor namely touch screen technology.

The motivation for combining the Graffiti gestures with the OCR area of Jaeger is that the Graffiti gestures are already well known to users.

Therefore it would have been obvious to combine Jaeger with Tran for the benefit of ease of use to obtain the invention as specified in claim 44.

24. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613) and further in view of Ames et al. (US 4,787,040).

With respect to claim 45, Fujimoto and Jaeger discloses, an apparatus according to claim 1 (see above).

Fujimoto and Jaeger do not expressly disclose wherein said computer is further used to process data from other electro-optical systems within the vehicle.

Ames discloses a computer (34 in fig. 3) that processes data for both the user-input touch-screen (36 in fig. 3) as well as data from a CD player (40 in fig. 3).

Fujimoto, Jaeger, and Ames are all analogous art because they are from the same field of endeavor namely, display peripheral interface input devices.

At the time of the invention it would have been obvious to enable the computer, of Fujimoto and Jaeger, to communicate with other systems in the vehicle.

The motivation for doing so would have been to simplify the operation of the vehicle by limiting the different panels that the user must use to operate all the functions of the vehicle.

Therefore it would have been obvious to combine Fujimoto, Jaeger, and Ames for the benefit of simplified operation to obtain the invention as specified in claim 45.

25. Claims 47-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaeger et al. (US 5,936,613) in view of Fujimoto (US 6,061,177).

With respect to claim 47, Jaeger discloses, at least one physical control detail located on the surface of the screen of said display (12 in fig. 1)

Jaeger does not expressly disclose, an instrument panel for a vehicle comprising: an extensive rear projection display controlled by a computer.

Fujimoto discloses, an instrument panel for a vehicle comprising: an extensive rear projection display (17 in fig. 14) controlled by a computer (14 in fig. 5).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the projection system of Fujimoto in place of the LCD display of Jaeger.

The motivation for doing so would have been that projection allows for a much more flexible screen size than that of LCD panels.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of flexible screen size to obtain the invention as specified in claim 47.

With respect to claim 48, Jaeger and Fujimoto disclose, an apparatus according to claim 47 (see above)

Jaeger further discloses, including an electro-optical means for sensing information from a plurality of points on said surface (col. 32 lines 31-49 details the operation of an IR sensing means), and providing said information to said computer to effect said control (note fig. 77 where information is transmitted to the microprocessor (or computer), element 111).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the detecting means of Jaeger in the invention of claim 47 disclosed by Fujimoto and Jaeger.

The motivation for doing so would have been to allow the control details to be located at any point within the screen.

Therefore it would have been obvious to combine Jaeger and Fujimoto for the benefit of reconfiguring the controls to obtain the invention as specified in claim 48.

With respect to claim 49, Jaeger and Fujimoto disclose, an apparatus according to claim 48 (see above).

Jaeger further discloses, wherein said information is state of control detail (col. 30, lines 22-26, states that the knob's rotational position signals (state of control) are transmitted).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the state of the control in the information, disclosed by Jaeger, in the apparatus of claim 48, disclosed by Jaeger and Fujimoto.

The motivation for doing so would have been to allow the control features to interact with the displayed images.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of interacting the controls with the display to obtain the invention as specified in claim 49.

With respect to claim 50, Jaeger and Fujimoto disclose, an apparatus according to claim 48 (see above)

Jaeger further discloses, wherein said information is position of control detail (note once again col. 32, lines 31-49, where the position of the control is determined).

At the time of the invention it would have been obvious to include the position in the information, disclosed by Jaeger, in the apparatus of claim 48, disclosed by Jaeger and Fujimoto.

The motivation for doing so would have been the ability to update the display based on where the control details were on the screen.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of updating the display based on the position of the controls to obtain the invention as specified in claim 50.

With respect to claim 51, Jaeger and Fujimoto disclose, an apparatus according to claim 48 (see above).

Fujimoto further discloses wherein said information is position of a finger touch on said surface (note fig. 3 for example).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to detect a finger touch, disclosed by Fujimoto, in the apparatus of claim 48, disclosed by Fujimoto and Jaeger.

The motivation for doing so would have been to allow interaction between the displayed data and the user without need for a control detail or a stylus (Fujimoto, col. 2, lines 34-38).

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of interaction without a control detail or stylus to obtain the invention as specified in claim 51.

With respect to claim 52, Jaeger and Fujimoto disclose, an apparatus according to claim 47 (see above).

Fujimoto further discloses wherein said video data is projected on said surface (col. 6, lines 60-62 discloses a projection system capable of projecting video images when controlled by a computer such as 14 in fig. 5).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to allow video data to be shown on the display screen taught by Fujimoto and Jaeger.

The motivation for doing so would have been to allow for a more dynamic and useful display.

Therefore it would have been obvious to combine Jaeger and Fujimoto for the benefit of a more dynamic and useful display to obtain the invention as specified in claim 52.

With respect to claim 53, Jaeger and Fujimoto disclose, an apparatus according to claim 47 (see above).

Jaeger further discloses, wherein said data is projected on said surface in order to reconfigure the function of said control details (col. 2, lines 4-7).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to reconfigure the display, taught by Jaeger, with each function of the apparatus of claim 47, disclosed by Jaeger and Fujimoto.

The motivation for doing so would have been to visually indicate to the user that the control detail had a different function.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of visually indication of the current function to obtain the invention as specified in claim 53.

With respect to claim 54, Jaeger discloses, a method for controlling a system comprising: providing, on a screen of said display a plurality of control details (note the two knobs in fig. 44); providing an electro-optical sensing means for sensing said plurality of control details using data from said sensing means (col. 30, lines 22-26, states that the knob's rotational position signals (state of control) are transmitted), and said computer (111 in fig. 77), determining the position of at least one of said control details (col. 32, lines 31-49); and controlling said system as a result of said sensed position (col. 32 lines 23-30).

Jaeger does not expressly disclose, providing a rear projection display controlled by a computer.

Fujimoto discloses, providing a rear projection display controlled by a computer (note projector 17 and computer 14 in fig. 5).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the projection system of Fujimoto in place of the LCD display of Jaeger.

The motivation for doing so would have been that projection allows for a much more flexible screen size than that of LCD panels.

Therefore it would have been obvious to combine Fujimoto and Jaeger for the benefit of flexible screen size to obtain the invention as specified in claim 54.

26. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (US 6,061,177) in view of Jaeger et al. (US 5,936,613) and further in view of Lata et al. (US 4,853,888).

With respect to claim 55, Fujimoto discloses, an electro-optical sensing means on a side opposite said surface from a driver of said vehicle (note fig. 5 for example).

Jaeger discloses, a method for sensing (col. 32 lines 32-49) a plurality of physical control details (note the two knobs in figs. 44 and 45) on a screen surface of a vehicle instrument panel comprising the steps of: and determining from said electro-optical sensing means the position of at least one datum on each of said plurality of control details (fig. 21 and col. 11, lines 35-55 discusses the operation of sensing the datum).

Lata discloses, a means of illumination of said control details (col.1 lines 65-68); optimizing at least on of said illumination and said sensing means as a function of ambient light in said vehicle (col. 11, lines 12-35);

Fujimoto, Jaeger, and Lata are all analogous art because they are from the same field of endeavor namely, display peripheral interface input devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include physical details (taught by Jaeger) that are illuminated based on ambient light levels (taught by Lata) on the electro-optical sensing display of Fujimoto.

The motivation for doing so would have been to allow for a multiple function keypad that is visible in all conditions (Lata, col. 1 lines 65-68).

Therefore it would have been obvious to combine Lata, Jaeger, and Fujimoto for the benefit of a multiple function clearly lit display screen to obtain the invention as specified in claim 55.

Conclusion

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Will Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2674

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